

Lesson 6 Graphing Linear Functions

Three Methods of Graphing

- 1) Table of Values
- 2) Intercepts
- 3) Slope Y-Intercept

1) Table of Values

Example 1

Sketch the graph of $y + 2x = 1$ using a table of values.

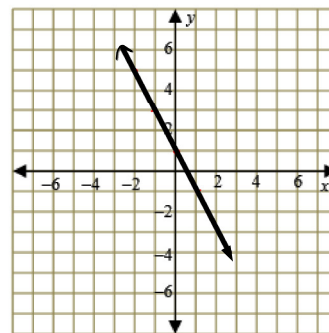
independent (we choose values)

dependent (solve for y)

x	$y = -2x + 1$	y
-2	$y = -2(-2) + 1$	5
-1	$y = -2(-1) + 1$	3
0	$y = -2(0) + 1$	1
1	$y = -2(1) + 1$	-1
2	$y = -2(2) + 1$	-3

sub into eqn.

plot



Steps

- Select values for "x", try to choose both positive and negative values.
- Substitute x into the equation and solve for y .
- Plot the points on a graph (**Remember to include a scale, labels and arrows.**)

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2) Intercepts

Recall:

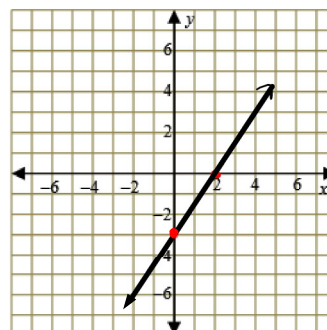
- x-intercept is the value of x when $y = 0$.
- y-intercept is the value of y when $x = 0$.

Example 1

Sketch the graph of $3x - 2y = 6$ using the intercept method of graphing.

x-int
 $y = 0$
 $3x - 2y = 6$
 $3x - 2(0) = 6$
 $\frac{3x}{3} = \frac{6}{3}$
 $x = 2$
 pt (2, 0)

y-int
 $x = 0$
 $3x - 2y = 6$
 $3(0) - 2y = 6$
 $-\cancel{2}y = \frac{6}{-\cancel{2}}$
 $y = -3$
 pt (0, -3)

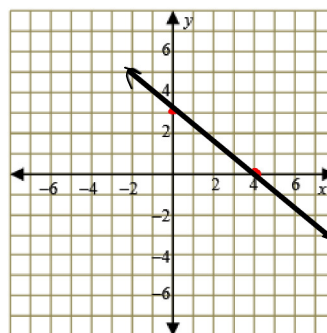


Example 2

Sketch the graph of $3x + 4y - 12 = 0$ using the intercept method.

$x = 0$
 $3(0) + 4y - 12 = 0$
 $4y = 12$
 $y = 3$

$y = 0$
 $3x + 4(0) - 12 = 0$
 $3x = 12$
 $x = 4$



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$$y - 2x + 4 = 0 \quad +2x - 4$$

$$y = 2x - 4$$

3) Slope Y-Intercept

Practice Solving for y (Change to $y = mx + b$ form)

a) $3x + 4y = 8$
 $\frac{4y}{4} = \frac{-3x + 8}{4}$
 $y = \frac{-3x}{4} + 2$
 ↑ slope ↑ y-int

b) $4y = 6x - 8$
 $y = \frac{3}{2}x - 2$
 ↑ slope ↑ y-int

c) $3y + 6x - 3 = 0$
 $\frac{6x - 3}{-3} = \frac{-3y}{-3}$
 $-2x + 1 = y$
 ↑ slope ↑ y-int

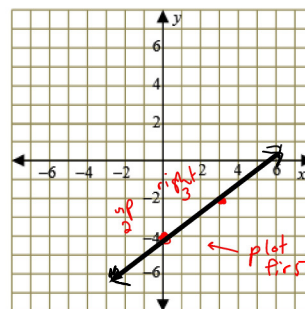
Example 1

$$y = \frac{2}{3}x + (-4)$$

Sketch the graph of $y = \frac{2}{3}x - 4$, using the slope y-intercept method.

$y = \frac{3}{2}x + 1$
 on mini graph

- ① Plot the y-int
 -4
- ② Use the slope ($\frac{\text{rise}}{\text{run}}$) to get a second point
 $\frac{2}{3}$ up 2
 right 3
- ← in slope-intercept form



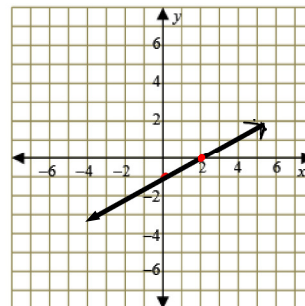
Example 2

Sketch the graph of $x - 2y = 2$, using the slope y-intercept method.

$$-2y = -x + 2$$

$$y = \frac{1}{2}x - 1$$

↑ y-int plot first
 go up 1, right 2 from y-int



$3y - 6x = 3$ on white board

Assignment: Pg. 362 #7 a-d Try 11